

REMARKS

Reconsideration of this application is respectfully requested.

Claims 1-20 are pending in the application. Upon entry of this Amendment, claims 1, 5 and 13 will be amended, claims 2 – 4, 6– 12 and 14 – 20 will be canceled, and new claims 21 – 29 will be added.

Applicants note that amended independent claim 1 and new claims 21 – 29, correspond in scope to the claims allowed in the European application corresponding to this application.

The Examiner is thanked for indicating in the outstanding Office Action, that objected to claims 5 and 13 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 5 and 13 have now been so rewritten. Accordingly, the Examiner's objection to these claims should now be withdrawn and these claims should now be in condition for allowance.

In the outstanding Office Action, the Examiner rejected claims 1-3, 6-7 and 10 under 35 U.S.C. §102(b), as being anticipated by Hutchinson *et al.* (USPN 6,152,563). The Examiner also rejected, as being unpatentable under 35 U.S.C. §103(a), claims 8-9, 11 and 14-20 over Hutchinson as applied to claim 1, and further in view of Lemelson *et*

al. (USPN 6,421,064), and claims 4 and 12 over Hutchinson alone. The Examiner's rejections are respectfully traversed.

Turning to the Examiner's rejection under §102(b), Applicants note that amended independent claim 1 of the present application defines an eye detection installation including one or more light sources, a detector and an evaluation unit. Each light source emits light in a direction toward the head of a user. The detector receives light from the head of a user and repeatedly captures pictures thereof. The evaluation unit is connected to the detector, and determines the position and/or gaze direction of an eye. The evaluation unit also determines, in a picture captured by the detector, an area in which an image of an eye or images of eyes is/are located, and, after having determined the area, controls the detector to forward to the evaluation unit information about successive or following pictures that only corresponds to the determined area of the image captured by the detector.

Independent claim 1 of the present application has been amended to include the description in originally filed claim 2 that the detector is arranged to only read out information from that portion of the detector surface that corresponds to the determined area in which an image of an eye or images of eyes is/are located, and thereby the data that are to be then forwarded to the evaluation unit.

Hence, claim 1 has been amended to clarify that only data from a determined area in which an image of an eye or images of eyes is/are located are forwarded by the detector to an evaluation unit.

Applicants contend that amended claim 1 describes an eye detection installation that is not anticipated by the teachings of Hutchinson because there is *no* description in Hutchinson, which relates to a data read-out of less than the entire image registered by the camera, much less than a teachings that only data from a determined area in which an image of an eye or images of eyes is/are located are forwarded by a detector to an evaluation unit.

Turning next to the Examiner's rejection under §103(a), Applicants contend that the invention defined by the amended claim 1 also non-obvious in relation to the teachings of Hutchinson. Applicants note that the objective technical problem to which the invention is addressed relative to the effects achieved by the differences between the presently claimed eye detection installation and the teachings of Hutchinson concerns providing a means for detecting and tracking eyes and gaze angles/directions having a further improved efficiency.

Applicants contend that a person of ordinary skill in the art confronted with this technical problem, and having access to Hutchinson, would *not* be motivated to modify or adapt the eye-gaze direction detection device of Applicants note, to produce the eye

detection installation described by amended independent claim 1 of the present application.

To support their contention of unobviousness, Applicants note that Hutchinson suggests strategies for enhancing the efficiency of the eye-tracking system, which are entirely focused on steps to be performed *after* data has been read out from the camera. Applicants assert that the strategies suggested by Hutchinson are applied to the subsequent data processing and to the user-interface, respectively.

To support their assertion, Applicants note the following. For instance, in search of so-called glares, Hutchinson says that: “*The system snaps an image and maps it into memory. Once the image has been acquired, the system then checks if any glares are present . . .*” (Hutchinson, col. 5, lines 35-37). Specifically the software here performs two passes in search of glares, one horizontal and one vertical. (Hutchinson, col. 5, lines 47-48). To improve the processing speed, a number of scan lines may be skipped horizontally and/or vertically (Hutchinson, col. 5, lines 49-55). Of course, the use of such line skip parameters presupposes that the *entire registered image be read out* from the sensor of the camera. Furthermore, to relax the requirements on the camera resolution, Hutchinson proposes presentation of an on-screen window containing a magnified screen area where a mouse action is to be performed (Hutchinson, col. 3, lines 35-42). Thus, when performing the mouse action the point of regard need not be determined with such a

high accuracy to accomplish the desired effect. Hence, Hutchinson does not instruct a person of ordinary skill in the art that a high image resolution can be combined with a relatively low bandwidth on a communication link between a camera sensor and the data processing unit. In fact, Hutchinson is regarded to *point away* from a solution wherein comparatively large amounts of data are discarded already in the detector, *inter alia*, because Hutchinson:

- (i) is silent about the possibility to exclusively process image data originating from particular areas of interest, and
- (ii) teaches alternative efficiency improvements which require complete photosensor read-outs.

Therefore, Applicants contend that amended claim 1 is *not* obvious to a person of ordinary skill in the light of Hutchinson.

Because independent claim 1 is not anticipated by or obvious over Hutchinson, dependent claims 22 to 29, which depend directly or indirectly from claim 1, so as to include all of the features of independent claim 1, are also not anticipated by or obvious over Hutchinson. Hence, dependent claims 22 to 29 are patentable over Hutchinson for the same reasons discussed above with regard to independent claim 1.

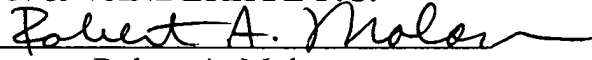
ELVESJÖ *et al.*
Application No. 10/535,227

Applicants further contend that, given the deficiencies in the teachings of Hutchinson noted above, the claimed invention is not obvious over the teachings of Hutchinson combined with Lemelson.

In view of the foregoing, it is believed that all of the claims pending in the application, *i.e.*, claims 1, 5, 13 and 21 – 29, are now in condition for allowance, which action is earnestly solicited. If any issues remain in this application, the Examiner is urged to contact the undersigned at the telephone number listed below.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
Robert A. Molan
Reg. No. 29,834

RAM:drt

901 North Glebe Road, 11th Floor
Arlington, VA 22203
Telephone: (703) 816-4000
Facsimile: (703) 816-4100